

## **REMARKS**

### **I. Introduction**

Claims 13 to 25 are pending in the present application. Claims 13 and 24 have been amended, without prejudice. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicants respectful request that the Examiner acknowledge the claim for foreign priority and indicate that all certified copies of the priority documents have been received.

Applicants respectful request that the Examiner indicate consideration of the previously filed Information Disclosure Statement, PTO-1449 paper and cited references.

### **II. Rejection of Claims 13 to 23 Under 35 U.S.C. § 102(b)**

Claims 13 to 23 were rejected under 35 U.S.C. § 102(b) as anticipated by Japanese Patent Application No. 50-36361 ("Kanebo"). Applicants respectfully submit that this rejection should be withdrawn for the following reasons.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of Calif., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). It is respectfully submitted that Kanebo does not teach each and every limitation of claims 13 to 23, as explained in detail below.

Amended claim 13 recites a protective layer that is relatively permeable for CO<sub>2</sub> and is relatively impermeable for SO<sub>2</sub>, including a gas-permeable carrier made of a material that is resistant to sulfuric acid media including SO<sub>2</sub> and SO<sub>3</sub> and a gas-permeable carrier made of a material that is resistant to sulfuric acid media including SO<sub>2</sub> and SO<sub>3</sub>, and **a hollow area disposed in the carrier,**

**bounded by an inner surface that can be exposed to a gas and is provided with a coating of an oxidizing agent** having an oxidation potential that is sufficient to oxidize SO<sub>2</sub>. Claims 14 to 23 depend from claim 13.

Kanebo purports to relate to an apparatus for cleaning air in the passenger area of an automobile. (English Abstract). The Office Action alleges that Kanebo discloses a layer of activated carbon which is "packed into a container" to form a filter, as stated in the abstract of Kanebo. (Office Action, page 2). It should be noted that the filter disclosed in Kanebo is merely a conventional type of activated carbon filter, which, as stated in the Applicants' specification, is "designed as compressed powder pellets or granules," packed into a container. One of the disadvantages of this type of conventional filters, as noted in the Applicants' specification, is that the CO<sub>2</sub> molecules must first penetrate through the packed granule material, thereby greatly prolonging the period of time needed for the CO<sub>2</sub> molecules to reach the sensor. (Specification, page 1, line 23 to page 2, line 8.) When used, for example, in a smoke detector, this lengthened response time may be quite undesirable.

Amended claim 13 recites that the carrier includes a **hollow area disposed in the carrier, bounded by an inner surface that can be exposed to a gas and is provided with a coating of an oxidizing agent**. Kanebo clearly does not disclose, or even suggest, this feature of claim 13.

Furthermore, the Office Action refers to Figures 2(a) to 2(f) of Kanebo as disclosing, "a honeycomb or tubular style [filter] having inside walls." However, according to the abstract of Kanebo, and as implicitly acknowledged by the Examiner ("a honeycomb catalyst for CO removal"), the honeycomb structures pictured indicate a **CO filter**, which is formed from cordierite. Figures 2(a) to 2(f) of Kanebo do not disclose, or even suggest, a **hollow area disposed in the carrier, bounded by an inner surface that can be exposed to a gas and is provided with a coating of an oxidizing agent having an oxidation potential that is sufficient to oxidize SO<sub>2</sub>**, as recited in amended claim 13.

While the Office Action further contends that "a block having a plurality of axially parallels [*sic*] round cylindrical tubes aligned side by side in a radial

alignment relative to one of a straight line and a point" is shown in "figure 2 (a-f)," it is simply not apparent which of Figures 2(a) to 2(f) show these features, if at all. It is respectfully submitted that while the abstract of Kanebo may refer to the cordierite honeycomb, neither the figures nor the abstract of Kanebo appear to disclose, or even suggest, "at least one tube having an inside wall provided with the oxidizing agent," as recited in claim 17, "axially parallel cylindrical tubes aligned side by side," as recited in claim 18, "cylindrical tubes that correspond to round cylinders," as recited in claim 19, or "a plurality of tubes arranged side by side in a radial alignment relative to one of a straight line and a point," as recited in claim 20.

Furthermore, the Office Action does not even allege that Kanebo discloses, and it is respectfully submitted that Kanebo does not disclose, "tubes having a **cross section that tapers** toward the one of the straight line and the point," as recited in claim 21, "a gas-permeable carrier including at least one grid having intersecting grid rods," as recited in claim 22, or "a gas-permeable carrier including a block having a plurality of grids stacked one above the other that are provided with the oxidizing agent," as recited in claim 23.

For the foregoing reasons, it is respectfully submitted that claim 13 is allowable over Kanebo. As for claims 14 to 23, which depend from claim 13, and therefore include all of the features of claim 13, it is respectfully submitted that claims 14 to 23 are allowable for at least the same reasons given above in support of claim 13, as well as for the additional reasons provided above specifically with respect to claims 14 to 23. It is therefore respectfully requested that this rejection of claims 13 to 23 be withdrawn.

### **III. Rejection of Claims 24 and 25 Under 35 U.S.C. § 103(a)**

Claims 24 and 25 were rejected under 35 U.S.C. § 103(a) as being anticipated by Japanese Patent Application No. 06-186198 ("Tokuyama") in view of Japanese Patent Application No. 50-36361 ("Kanebo"). Applicants respectfully submit that this rejection should be withdrawn for the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9

F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Amended claim 24 relates to a CO<sub>2</sub> sensor, including a protective layer that includes a gas-permeable carrier made of a material that is resistant to sulfuric acid media including SO<sub>2</sub> and SO<sub>3</sub>, and a hollow area disposed in the carrier, bounded by an inner surface that can be exposed to a gas and is provided with a coating of an oxidizing agent having an oxidation potential that is sufficient to oxidize SO<sub>2</sub>, the protective layer separating the CO<sub>2</sub> sensor from a room to be monitored for a CO<sub>2</sub> content. Claim 25 depends from claim 24.

As explained above in connection with claim 13, Kanebo does not disclose, or even suggest, all of the above-recited features of claim 24, e.g., a hollow area disposed in the carrier, bounded by an inner surface that can be exposed to a gas and is provided with a coating of an oxidizing agent. Similarly, Tokuyama also fails to disclose the above-recited features of claim 24, and the Office Action does not even allege that Tokuyama discloses such features.

Furthermore, the Office Action admits that "[Kanebo] does not teach that this filter be used as a protective layer for separating a carbon dioxide sensor from a room to be monitored for carbon dioxide." (Office Action, page 3.)

Tokuyama relates to a carbon dioxide sensor including a filter made of zeolite placed at a distance from a carbon dioxide sensor element, which is heated. The filter converts organic gas contacting the sensor element into carbon dioxide. (Tokuyama, Abstract). Therefore, the combination of Kanebo and Tokuyama fails to disclose, or even suggest, all of the features of claim 24, e.g., a protective layer that

includes a gas-permeable carrier made of a material that is resistant to sulfuric acid media including SO<sub>2</sub> and SO<sub>3</sub>, or that the protective layer separates the CO<sub>2</sub> sensor from a room to be monitored for a CO<sub>2</sub> content. Furthermore, there is no suggestion in either of the applied references to combine the Kanebo apparatus for cleaning the air in the passenger area of an automobile with the Tokuyama carbon dioxide sensor.

For the foregoing reasons, it is respectfully submitted that claim 24 is allowable over the combination of Tokuyama and Kanebo. As for claim 25, which depends from claim 24, and therefore include all of the features of claim 24, it is respectfully submitted that claim 25 is allowable for at least the same reasons given above in connection with claim 24. It is therefore respectfully requested that this rejection of claims 24 and 25 be withdrawn.

#### IV. Conclusion

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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